



**Electro-Voice®**

a MARK IV company

## Model CS15P\* Cardioid Electret Condenser Microphone

### SPECIFICATIONS

**Element:**

Electret condenser

**Frequency Response:**

40-18,000 Hz

**Polar Pattern:**

Cardioid

**Impedance:**

150 ohm nominal (balanced)

**Element Capacitance:**

27 pF

**Output Level:**

-45 dB ref

(0 dB = 1 mW/10 dynes/cm<sup>2</sup>)

**EIA Sensitivity Rating:**

-137 dB

**Self Noise:**

1.4 uV "A" weighted

**S/N Ratio:**

72 dB "A" weighted

**Dynamic Range:**

119 dB

(141 dB input — open circuit)

**Equivalent Noise Level:**

Less than 22 dB re .0002 dyne/cm<sup>2</sup>

"A" weighted

**Maximum SPL at 1% THD:**

141 dB (SPL)

**Case Material:**

Steel

**Dimensions:**

176 mm (6.94 in.) long,

27 mm (1.06 in.) maximum diameter,

19 mm (0.75 in.) shank diameter

**Weight:**

227 grams (8 oz)

**Finish:**

Fawn beige micomatte

**Cable:**

4.6 m (15 ft) two-conductor, shielded,

brown rubber-jacketed cable with

Switchcraft A3F connector

**Operating Voltage:**

8 to 50 V dc (Standard 48 V remote

power accepted — see PE15 data

sheet)

**Current Required:**

3 to 12 mA (depending upon supply

voltage)

**Accessories Included:**

315A windscreen

312A stand clamp

**Optional Accessories:**

AC24 power supply

BS9 battery supply

CA10 attenuator

307 shock mount

310A stand clamp

313A shock mount

340 security clamp

### DESCRIPTION AND APPLICATIONS

The Electro-Voice Model CS15P is a professional remotely powerable electret condenser cardioid microphone designed especially for recording, broadcast and sound reinforcement applications where the smooth, wide range response of a studio microphone is desired. The machined steel case and rugged internal design enable the CS15P to withstand abuse.

The CS15P being a true cardioid microphone, offers greatest rejection at 180° off-axis, directly to the rear of the microphone. Like all other condenser

cardioid microphones, the CS15P is a single "D" cardioid. Due to the proximity effect in all single "D" cardioids, the low frequency response of the CS15P is dependent upon the distance from the sound source to the microphone as illustrated in Figure 2

Maximum bass response is produced in close-up use with the microphone one quarter inch from the sound source (Figure 2A). Minimum bass response is experienced at distances greater than 61 cm (24 in.) (Figure 2C). By working closer to the microphone than might otherwise be natural, the human voice will sound more robust, although intelligibility may be adversely affected.

### OPERATING INSTRUCTIONS

The CS15P condenser microphone requires a remote power supply in order to operate. Power may be obtained from a microphone input equipped with standard 48 V dc remote powering or from an accessory power supply piced in the line between the microphone and mixer input. The Electro-Voice AC24 power supply or the BS9 battery supply are intended for this purpose. See the PE15A Engineering Data Sheet for further details.

### SPECIAL NOTE—MAINTENANCE INSTRUCTIONS

This electret condenser microphone should not be left in the open sun or other hot environments where temperatures may approach or exceed 130 degrees Fahrenheit

\*U.S. Patent No. 3,944,756

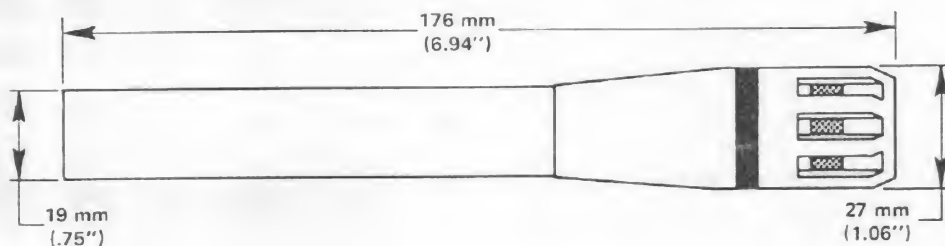


FIGURE 1 – Dimensions

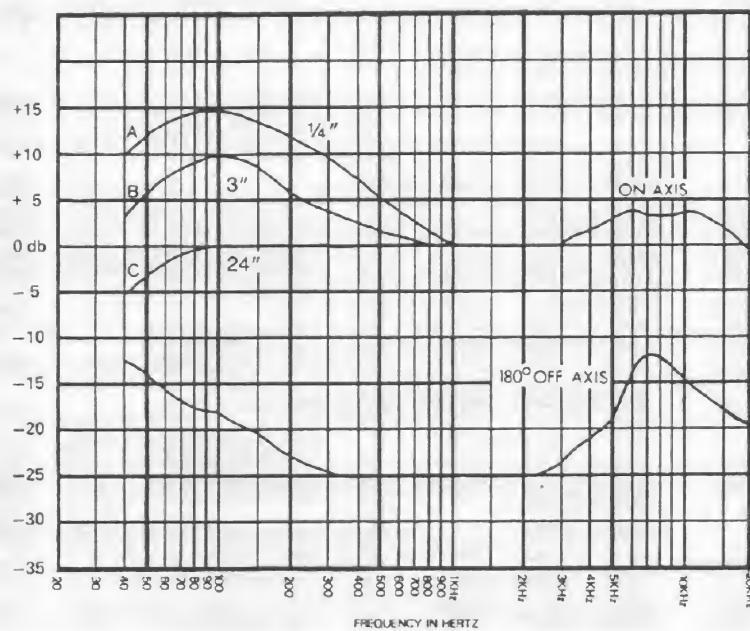


FIGURE 2 – Frequency Response

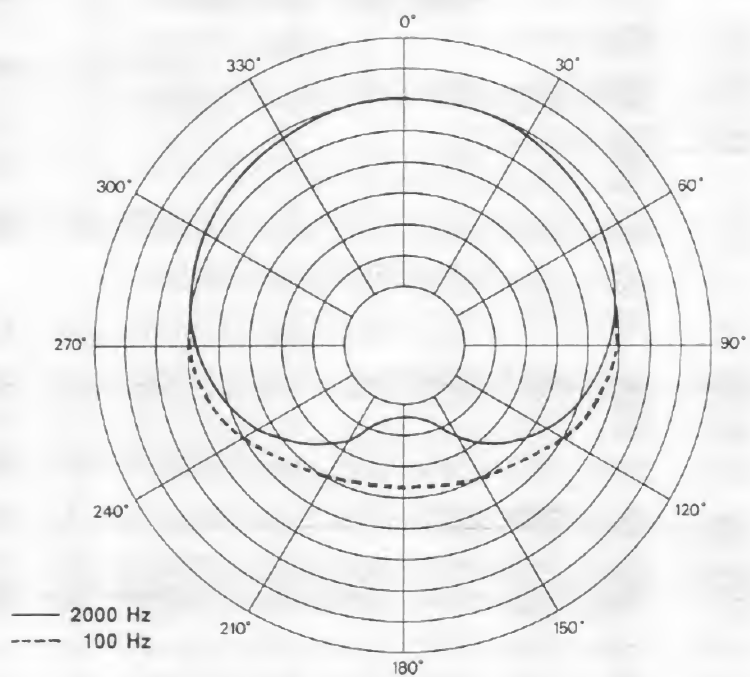


FIGURE 3 – Polar Response

for any period of time. Following this suggestion will prolong the life of the generating element, and insure reliable, trouble-free performance over the years.

#### CS15P AND DISTORTION

Many times, microphones are unjustly accused of causing distortion. More often than not, the mixer *preamp* is the problem. Mixer or console preamps are designed to operate with a nominal input level of several millivolts. When this nominal input level is exceeded, the preamp quickly goes into clipping, thus causing distortion. Both dynamic and condenser microphones are capable of delivering over one volt to the mixer input at less than .15 percent total harmonic distortion. Preamps, over the years, traditionally have been designed with dynamic microphones in mind. With condenser microphones having output levels 10 to 20 dB greater than dynamics, caution should be exercised so as not to overload the mic preamp.

#### ELECTRET PRINCIPLE

The generating element of a condenser microphone is a capacitor, with one of its plates being the microphone's moving diaphragm, the other plate being the stationary backplate. When a charge is applied to the diaphragm, and changes in air pressure move the diaphragm, an output voltage is generated. All condenser microphones require a charge or difference of potential between diaphragm and backplate. The early condenser microphones achieve this by employing an external dc power source of approximately 200 volts. This system at best was awkward to use.

Today, condenser microphones operate from voltages of 48 volts and less. There are two methods of utilizing these lower voltages. One method increases the input voltage by employing some sophisticated electronic circuitry. Another method is to apply the 48 volts directly to the diaphragm, thus making the dynamic range and sensitivity of the microphones totally dependent upon the stability of the 48-volt supply. Still other methods have been devised.

In recent years, materials and techniques have been developed which allow placing a permanent charge on the condenser microphone capacitor element (diaphragm). This ability to permanently charge a material is known as the Electret Phenomenon. With a permanent charge on the diaphragm, the only voltage now needed is to power the impedance converter. Because the output of any condenser microphone element is extremely high impedance, a means to convert the small fluctuations in capacitance into a usable output voltage is needed. The impedance converter provides this function

and generally consists of field effect transistor and its associated circuitry.

#### ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The microphone shall be a condenser cardioid type. The microphone shall have a wide range uniform frequency response from 40 to 18,000 Hz.

Response at the front of the microphone at 600 Hz shall be nominally 25 dB greater than the response at the rear.

The microphone shall have an output of -45 dB (0 dB = 1 mW/10 dynes/cm<sup>2</sup>). The microphone shall have an electret diaphragm. A 4.6 m (15 foot), 2-conductor, shielded, brown rubber-jacketed cable with a Switchcraft A3F connector installed in the microphone end shall be provided. Low impedance connections shall be balanced line configuration.

The microphone shall accept a 141 dB SPL input while providing no greater than 1% THD output (open circuit termination). Dynamic range shall be 119 dB or greater. Equivalent noise shall be less than 22 dB.

The case shall be machined steel. Dimensions shall be 176 mm (6.94 in.) long, 27 mm (1.06 in.) diameter, 19 mm (0.75 in.) shank diameter and weight shall be 227 g (8 ounces). A removable windscreen, model 315A shall be provided along with a model 312A clamp. Finish shall be fawn beige micomatte.

The Electro-Voice Model CS15P condenser microphone is specified.

#### WARRANTY (Limited)

Electro-Voice Professional, PL & BK Series Microphones are guaranteed against malfunction from any cause for a period of two years from date of original purchase. Also, these microphones are guaranteed without time limit against malfunction in the acoustic system due to defects in workmanship and material. Any active electronics incorporated in the microphone are guaranteed for three years from date of original purchase for parts and labor against such malfunction. If such malfunction occurs, microphone will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not extend to finish, appearance items, cables, cable connectors, switches, or malfunction due to abuse or operation under other than specified conditions, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized warranty service agencies will void this guarantee. A list of authorized warranty service centers is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107.

Specifications subject to change without notice.